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Birds from the Old East Slavic settlement "Igren 8" (12th–13th century AD; Ukraine)

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The work presents the results of the analysis of a species diversity of the Old East Slavic settlement "Igren 8" (Dnipropetrovsk, Ukraine). The settlement occupied the area of nearly 15 ha which was relatively large for this region. In Medieval period around the mouths of tributaries to the delta of the Dnieper dense forests were located, although the region is located in the south forest-steppe zone and the steppe zone. The majority of hunted birds belong to the group Anatidae (at least 72% of the minimum possible number of individuals). Poultry played the minor role in the diet of the residents of the medieval settlement "Igren 8". We have drawn the conclusion about birds from "Igren 8" inhabiting water with thickets of the hygrophyte vegetation on the periphery. Nowadays, there are many embryophytes such as *Phragmites australis*, *Typha spp.*, *Glyceria maxima*, *Acorus calamus* and others in these places. Hygrophytes covering of reservoirs is typically less than 20%.

Keywords: avifauna; game bird; archeornitology; Medieval; Old Rus'

Птахи з давньослов'янського поселення «Ігрень 8» (XII–XIII ст. н.е.)

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Ігрень 8 – унікальна археологічна пам'ятка. Культурні шари містять сліди перебування людини в даному місцезнаходженні з неоліту до монгольської навали. Люди населяють територію і сьогодні, вона входить у межі сучасного м. Дніпропетровськ. Місцезнаходження неодноразово згадане в археологічній (у тому числі археозоологічній) науковій літературі. Проте птахи з культурних шарів майже не описані (крім одноразової згадки про дрохву (*Otis tarda*)). У статті наведено результати дослідження видового різноманіття птахів із давньоруського поселення Ігрень (XII – початок XIII ст.). Згідно з результатами інших досліджень, жителі поселення споживали переважно домашні види ссавців, мисливська здобич становила меншу частку в раціоні. Із птахами ситуація протилежна. Лише 15% мінімально можливої кількості особин належало домашній курці, ще одна кістка гусці, можливо, домашній. Висока частка мисливських видів птахів вирізняє Ігрень з-поміж більшості інших давньоруських поселень тих часів. Переважна більшість кісток птахів належить диким видам качок. Видове різноманіття близьке до сучасного різноманіття качок на Дніпропетровщині, проте чирянка велика (*Anas querquedula*), яка на початку XX ст. була одним із наймасовіших видів у матеріалах про Ігрень, не є масовою в середньовічних рештках. Аналіз видового різноманіття вказує, що в околицях поселення в часи пізнього Середньовіччя були типовими водойми із заростями гігрофітної рослинності по периферії. Невелика кількість решток гусей дає підстави припускати відсутність у гирлі р. Самара заплавних лук. Також аналіз видового складу дає підстави вважати, що більшість птахів було впольовано під час міграційних прольотів. Відмічено відсутність сірого журавля (*Grus grus*), рештки якого наявні в переважній більшості середньовічних поселень Київської Русі. Як і в більшості поселень, відсутня лиска (*Fulica atra*), яка в наші дні посідає друге місце за кількістю добутих на полюванні птахів. Відсутність решток хижих птахів пояснюємо тим, що Ігрень населяли представники незаможних класів, що підтверджено археологічними даними. Результати промірів кісток домашньої курки вказують, що у поселенні мешкали птахи помітно крупніші, ніж у решті давньоруських поселень, розташованих у лісостеповій зоні. Ймовірно домашні кури в Ігрень були завезені з інших регіонів Східної Європи. Відсутність у знахідках решток молодих курчат дає підстави припускати, що у поселенні не розводили курей, а привозили.

Ключові слова: авіфауна; дичина; археорнітологія; Середньовіччя; Давня Русь

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Introduction

The Middle Ages on the territory of Ukraine was a time of increasing role of pets, including birds, in the people's nutrition. Busting of the new areas and reduction of forests have led to decrease in the variety of wild fowl (Brjuzgina, 1975). Birds of medieval settlements of Ukraine were investigated less than those of the Ancient or the Paleolithic. Some information about the birds from 42 locations is given in articles by Umanskaja (e.g. Umanskaja, 1962, 1965; Brjuzgina (Umanskaja), 1975). However, it is known that there are more numbers of known medieval settlements, but archaeo-zoological researches are limited in research of mammals. Such unequal efforts in studying are inherent for archaeo-zoology (Corona, 2010).

The South Dnieper had favorable natural and geographical conditions and attracted different tribes for a long time. Archaeological locations on the Igren's peninsula (Dnipropetrovsk, Ukraine) (48°28′38″ N, 35°11′33″ E) have been known since 1927. Mesolithic location "Igren 8" was studied particularly well (Telegin, 1982). However, traces of human stay in the Neolithic and the Middle Ages are also found in this location. In this article, we consider the birds of the medieval settlement in "Igren 8".

The most of medieval settlements in the southern Dnieper are located near the mouths of small tributaries of the Dnieper river. Here there are plenty of fertile alluvial soils, making the territory favorable for agriculture (Uspenskaja and Fehner, 1956). Specifically, Igren is located at the confluence of the Samara River. Around the mouths of tributaries to the Delta of the Dnieper dense forests were located (Dokuchaev, 1949), although the region is located in the south forest-steppe zone and the steppe zone. Like the most of medieval settlements, Dnieper Igren 8 was based on the island protecting it from attacks. It was important place for river crossing. The remains of pottery indicate that people lived here in the 12^{th} – early 13^{th} century. After the Mongol invasion the settlements disappeared (Kozlovs'kyj, 1992).

Characteristics of the settlement are presented by A.O. Kozlovs'kyj (Kozlovs'kyj, 1992). The settlement occupied the area of nearly 15 hectares which was relatively large for this region. For this settlement irregular construction is inherent, and location of homes depended on microrelief. Six homes were excavated. All of them have the shape of a square or rectangle with the area from 9 to 37 m^2. The ethnic composition is: Slavs, who moved to the Middle Dnieper, descendants of Uliches, Alan-Bulgarians, may be Kumans. Four graves were found, all of them with the observance of the Christian ceremony. Agricultural and woodworking tools, household items and fishing gear dominated among the instruments of labor. There are small number of weapons (mainly arrowheads, one spear), instruments for hunting, including billet to the duck call.

As in the other settlements, there are many fish scales in the cultural layers of "Igren 8". Among the animals determined there were ox (980 bones, belonging to 33 individuals), sheep (181 bones, 35 individuals), goat (4 bones), lamb or goat (432 bones, 22 individuals), pig (115 bones, 23 individuals), horse (13 bones, 3 individuals), dog (8 bone, 1 individuals), hare (9 bones, 2 individuals), fox (4 bones, 2 individuals), bear (1 bone, 1 individuals), wild pig (3 bones 2 individuals), roedeer (8 bones, 3 individuals), red deer (2 bones, 1 individuals). Besides, 23 bones of birds are mentioned, among which bustards (*Otis tarda*) are defined. Therefore, the species composition indicates that pets dominated in the diet. Horse meat was consumed a little, obviously the horses were used to drive and work.

Material and methods

The reference comparative skeletal collection of NMNH Paleontology department was used to determine the bones. Also "A key for the identification of domestic bird bones in Europe" (Tomek and Bochenski, 2009) was used. Total 170 fragments of birds bones, of which 106 could be determined (Table 1). The bones are deposited in the National Museum of Natural History at the National Academy of Sciences of Ukraine (Nos. AZ 480-586).

Results and discussion

The sample is small (72 bones of game birds, 27 individuals) and doesn't represent the whole species diversity hunted by Igren people. Most likely, these species were common in this region. We'll compare the data from Igren with the modern data of these species' distribution in Dnipropetrovsk region (Bulahov et al., 2008).

Mallard (*Anas platyrhynchos*), northern shoveller (*Anas clypeata*), gadwall (*Anas strepera*), common teal (*Anas crecca*), common pochard (*Aythya ferina*), purple heron (*Ardea purpurea*) are common breading species nowadays.

Common shelduck (*Tadorna tadorna*), widgeon (*Anas penelope*), smew (*Mergellus albellus*) are common migratory species nowadays.

Garganey (*Anas querquedula*) are regularly breeding, sometimes wintering nowadays.

Pintail (*Anas acuta*) are regularly migratory, sometimes breading nowadays.

Greater scaup (*Aythya marila*), tufted duck (*A. fuligula*) are migratory, sometimes wintering species.

Grey partridge (*Perdix perdix*), rook (*Corvus frugilegus*) are present all year around.

This data shows that the majority of these species were hunted during the migration.

The vast majority of bird bones found in the medieval layers of "Igren 8" belonged to wild species of ducks. Species diversity of ducks is higher than, for example, in Medieval sites in Brussels (Belgium) (Thys and Van Neer, 2010), Oltina (Romania) (Gal, 2005), Kołobrzeg (Poland) (Makowiecki and Gotfredsen, 2002), but is comparable with diversity in Polissya: StrugaII (Belorussia) (Zelenkov, 2008) and Stadnyky (Gorobets, Bondarchuk and Zarutska, in print). Probably, it is connected with the location of Igren on Dnieper river, being an important migration way. Possibly Polissya marshes played significant role in the duck migrations.

Moreover, domesticated forms were not found among them. Only 16% of bones (15% of the minimum possible number of individuals) belonged to hen. It is a pretty low number. Number of poultry accounted for more than 50% in the most famous medieval Slavonic settlements (Brjuzgina,

1975). This result is also not consistent with the results of the study of species diversity of mammals. As mentioned earlier, the majority of residues of mammalian in the settlement belonged to home species, and only a small number belonged to wild species. So, the conclusion of A. Kozlovskyj about the low part of hunting species in the diet of the residents of the settlement Igren 8 is true only in relation to mammals. In the case of birds, the situation is the opposite, i.e. the vast majority of species were hunted.

Comparison of the Igren ducks with modern duck diversity in Dnipropetrovsk region shows that they are very much alike. Only common goldeneye (*Bucephala clangula*), some rare wintering species (*Oxyura leucocephala*, *Melanitta nigra*, *Melanitta fusca*, *Clangula hyemalis*), fish-eating (meat from these birds have bad taste) goosander (*Mergus merganser*) and red-breasted merganser (*Mergus serrator*) are not found at Igren.

Table 1

Species diversity of birds of the settlement "Igren 8"

Species	Proximal phalanges dig. majoris	Carpometacarpus	Ulna	Radius	Humerus	Coracoideum	Scapula	Furculla	Femur	Tibiotarsus	Tarsometatarsus	Total number of bones	Minimal number of individuals	Percentage of the total number of individuals
Anser anser (L., 1758)	–	–	–	–	2	1	–	–	–	–	–	3	1	3
Tadorna tadorna (L., 1758)	–	–	–	–	–	–	–	–	1		1	2	1	3
Anas platyrhynchos L., 1758	3	3	1	–	4	9	3	2	–	1	–	26	6	18
A. acuta L., 1758	–	–	–	–	–	2	–	–	–	–	–	2	2	6
A. clypeata L., 1758	–	–	1	–	3	3	–	–	–	–	–	7	3	9
A. penelope L., 1758	–	–	2	–	4	5	–	–	–	–	–	11	4	12
A. crecca L., 1758	–	–	–	–	–	1	–	–	–	–	–	1	1	3
A. strepera L., 1758	–	–	–	–	1	1	–	–	–	–	–	2	1	3
A.s querquedula L., 1758	–	–	1	–	1	1	–	–	–	1	–	4	1	3
Aythya ferina (L., 1758)	–	–	–	1	2	3	–	–	–	1	–	7	2	6
A. marila (L., 1761)	–	–	–	–	–	1	–	–	1	–	–	2	1	3
A. fuligula (L., 1758)	–	–	–	–	–	1	–	–	–	–	–	1	1	3
Mergus albellus (L., 1758)	–	1	–	–	1	2	–	–	–	–	–	4	1	3
Ardea purpurea (L., 1766)	–	–	–	–	–	1	–	–	–	–	–	1	1	3
Perdix perdix (L., 1758)	–	–	–	–	1	1	–	–	–	–	–	2	1	3
Gallus gallus f. *domestica* (L., 1758)	–	–	2	1	5	1	–	–	4	3	1	17	5	15
Corvus frugilegus L., 1758	–	–	1	–	–	1	–	–	–	–	–	2	1	3

At the beginning of the XX century garganey (*Anas querquedula*) represented very numerous species on the territory of Dnipropetrovsk region. During the century its number decreased, because of action of the anthropogenic factors (Bulahov et al., 2008). Nevertheless, the number of Garganey bones from Igren in the 12th century is not larger compared with other ducks bones. Possibly, there were population waves.

Archaeo-zoological data supports the fact that ecological characteristics of birds did not change during the ages. Knowing the properties of the birds of our time, one may draw the conclusion regarding the biological character of the earlier environments (Gal, 2005). Over 45% of individuals belonged to species: *Anas platyrhynchos*, *A. penelope*, *A. crecca*, *A. clypeata* and *A. querquedula*. These ducks prefer open pound or open water with dense riparian vegetation. However, open pounds are also preferred by geese, especially greater white-fronted goose (*Anser albifrons*). In "Igren 8" the remains of only one goose (probably domestic) were found. May be, this bird from "Igren 8" inhabited another type of biotopes: water with thickets of the hygrophyte vegetation on the periphery. It is confirmed by the fact that among the preys the birds from genus *Aythya* also enjoying this type of biotope, are available. Nowadays, there are many such embryophytes as *Phragmites australis*, *Typha spp.*, *Glyceria maxima*, *Acorus calamus* and others in these places. Hygrophytes covering of reservoirs is typically less than 20% (Davydenko, 2007).

A small number of remains of geese provide reasons for assuming the lack of suitable habitat for these birds. Today, *Anser anser* in steppe zone of Ukraine prefers bottomland meadows near the river valleys. This species is a typical hunting prey, but probably in the 12th and 13th centuries this type of habitat was not present at the mouth of Samara river.

Now there are numerous eurasian coot (*Fulica atra*) (Davydenko, 2007) on such type of water bodies. Bones of this species are absent not only in "Igren 8", but in general they are rare among the bones found at the human habitation places (based on our data analysis of NMNH exhibits). Perhaps, this species in the past was much less widespread or not considered hunting prey. However, eurasian coot bones were not present in the majority of middle age East Slavonic settlements, whereas common crane (*Grus grus*) bones were found in many of them (our data). In some settlements it was the most numerous bird after the hen. For example, in Voi'n' (not far from Zheld') it made 12,5% of the number of individuals (Umanskaja, 1965).

Corvids bones are often considered as the remains of uneatable birds (e.g. Serjeantson, 2006). But it is known that in the Medieval period they were eaten in France (Clavel,

2001). Tereza Tomek regards coots as not a hunting prey. She suggests that birds with black plumage were killed with some ritual purpose (Tomek and Guminski, 2003). Perhaps for the same reasons the rook (*Corvus frugilegus*) was killed which bones are also available in the settlement. This assumption can be confirmed by the fact, that in the Old Russian settlement Zheld' (10^{th} – 12^{th} AD) (200 km from Igren) the skeleton of crow covered with the vessel was found buried indoors in the house floor (our data; deposited in NNPM, bones Nos. AZ 1389-1407).

Table 2

Humerus distal width of *Gallus gallus domestica* (measurements are in millimeters)

Region		Age	min	max	mean	*n*
Mixed forest zone	Locations of the north-western part of the zone: Grodno, Lukoml' (our data)	11^{th} – 13^{th} century AD	13,1	15,7	14,5	13
	Locations of the northern part of the zone: Novgorod (our data)	10^{th} – 12^{th} century AD	12,8	16,9	15,0	20
	Locations of the southern part of the zone: Korolenko, Kolodjazhne, Kyiv, Rajki, Shchuchynka, Vyshgorod (our data)	10^{th} – 13^{th} century AD	13,6	15,2	14,5	14
	Ukraine Medieval site (Umanskaja, 1972)	Medieval	13,0	18,0	15,6	25
Forest-steppe zone	"Igren-8" (our data)	12^{th} – 13^{th} century AD	14,0	16,0	15,1	5
	Locations: Knjazha Hora, Donetske horodyshche, Ivan-Hora (our data)	11^{th} – 13^{th} century AD	13,4	14,7	13,7	6
	Ukraine Medieval site (Umanskaja, 1972)	Medieval	11,0	17,4	14,3	38
Steppe zone	Chersoneses (Korsun') (our data)	11^{th} – 12^{th} century AD	12,6	14,0	13,5	5
	Ukraine Medieval site (Umanskaja, 1972)	Medieval	13,7	16,8	15,4	8
Ukraine (recent outbred hen) (Umanskaja, 1972)		20^{th} century AD	13,4	17,0	15,0	44

Birds of prey are not found in Igren. Probably, hunting birds were rare in settlement where rich people were not found. Igren hen sizes were similar to modern outbred hen sizes (table 2). They were bigger than other hens from medieval east Slavonic settlements of the forest-steppe zone. May be, these hens were similar to those which were kept in other regions. Possibly hens were brought to Igren, but not grown there, because immature chickens were not found on this site, whereas the presence of chickens indicates that they were grown by local people (Thys and Van Neer, 2010).

Conclusions

Poultry played the minor role in the diet of residents of the medieval settlements "Igren 8" (about 15% of residues belong to hen. Maybe, there was also domestic goose). Hunting was carried out during migrations. Most of residues belonged to the ducks of genus *Anas*, in fewer to genus *Aythya*. These species prefer ponds with thickets of hygrophyte vegetation on the periphery. Perhaps, it is the type of biotope which was the primary bird hunting ground. A small number of residues of geese is the evidence of the lack of floodplain meadows in the mouth of Samara river.

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